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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/895,876 | 07/02/2001 | Taylor Pursell | 46104 | 5376 |

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| EXAMINER | |
|---|---|
| CLARDY, S | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1616 | |

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/895,876 | PURSELL ET AL. | |
| | Examiner | Art Unit | |
| | S. Mark Clardy | 1616 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *05 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *15-50,52-59,61-169 and 171-202* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-50,52-59,61-169 and 171-202* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims 15-50, 52-59, 61-169, 171-200, and new claims 201-202 are pending in this application which claims the benefit under 35 USC 119(e) of US Provisional Applications No. 60/216,162, and 60, 254,178, filed July 3, 2000, and December 11, 2000, respectively.

Again, applicants' claims are drawn to controlled release agricultural absorbent compositions (claims 15-50, 52-59, 61-122, 142-144, 202) and methods of making them (claims 123-141, 145-169, 171-201) comprising:

1) absorbent particulate material with 10-200 μ diameter capillaries/voids
   claim 18: expanded or exfoliated (claim 63) perlite, shredded newspaper, saw dust, cotton lint, ground corn cobs, corn cob flour, Metrecz absorbent, diatomaceous earth.

2) agricultural materials (optionally with an interspatial blocker[1], claim 35-49)

| | |
|---|---|
| fertilizers (claims 7-14, 23-31): | NPK, micronutrients, secondary nutrients, nitrification regulators[2], growth regulators[3] |
| insecticides(claim32): | OO-diethylO-(2-isopropyl-6-methyl-4-pyrimidinyl)phosphoro-thioate |
| herbicides (claim 33): | 2,4-D |
| fungicides (claim 34): | ferric dimethyldithiocarbamate |

The capillary/void spaces are impregnated (40-95%) with the agricultural materials by first absorbing water into the particulate material which is then heated to form steam. The heated absorbent particulate material is then placed into an aqueous solution of the active agent which is apparently pulled into the capillary spaces which

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[1]E.g., plant starches, protein gels, glues, gums, crystallizing compounds (sodium silicate, phosphate cements, calcium oxide cements, hydraulic cements: claim 44), gelling clays, synthetic gel forming compounds.

[2]Claim 31: 2-chloro-6-trichloromethylpyridine, sulfathiazole, dicyandiamide, thiourea, guanylthiourea

[3]Claim 30: potassium azide, 2-amino-4-chloro-6-methylpyrimidine, N-2,5-dicorphenyl succinamide, 4-amino-1,2,4-triazole hydrochloride

were vacated by the escaping steam. The resultant absorbent particulate material is then agglomerated into granules. Only fertilizer compositions have been tested.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 15-50, 52-59, 61-98, 123-169, 171-184, 201, and 202 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-28 of copending Application No. 10/460,650. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: carrier compositions comprising the same absorbent and carrier materials.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending

application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 15-50, 52-59, 61-169, and 171-202 are again rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Pierce (US 3,172,752), Burkett (US 2,779,670), and Huber et al (4,923,506, previously cited).

Pierce, again, teaches controlled release agrochemical compositions comprising the combination of active agents coated onto expanded perlite particles with the coating completely filling the pores of the perlite particles (col 2, lines 40-61). To make the compositions, the perlite particles are heated to drive off part of the combined water, or water of crystallization to generate gas pressure in the bubbles within the perlite (col 3, lines 50-55). With the particles pre-heated, the coating liquid is sucked into and generally will fill all pores exposed to or communicating with the surface, especially if a wetting agent is used (col 4, lines 40-46; col 9, lines 36-46). Soluble cellulose such as methyl cellulose is disclosed as a holding material which is useful as a carrier for active agents such as insecticides, fungicides, herbicides, etc. (col 6, lines 15-40). Additional holding materials are disclosed in columns 6-7. Processes for forming tablets or pellets are also described (columns 16 and 21).

Burkett, again, teaches soil conditioning and fertilizing compositions comprising agriculturally active chemicals distributed uniformly throughout the soil conditioner (col 1, lines 42-47). Expanded natural perlite is used for the carrier material (column 2); it is heated in a kiln at a temperature of 900° F to 1450°F (lines 70-71) and is then discharged into an aqueous solution of the desired agricultural additives in a mixing tank. The open pores, cells, bubbles, and interstices in the expanded perlite then absorb the liquid solution in excess of 11.5 times the weight of the perlite (col 3, lines 1-12). Claim 2 incorporates a final step for forming pellets.

Huber et al teaches that starches, gums, cellulose derivatives and other polyhydroxy polymers are equivalent carrier materials which function as controlled release matrices (column 2) for agriculturally active agents such as fertilizers, plant growth regulators, and various pesticides (col 3, lines 10-23). One of ordinary skill in the art would be motivated to use the carrier materials of Huber et al for the carrier or "holding" materials of Pierce because they exhibit the required holding characteristics of Burkett, and because methyl cellulose is specifically disclosed in both references.

One of ordinary skill in the art would be motivated to combine Pierce and Burkett because they disclose the step of heating perlite prior to absorbing an agriculturally useful liquid composition into the pores of the heated perlite.

Again, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have combined applicants' absorbent particulate materials and agriculturally active agents in a single composition to make tablet formulations because the prior art teaches the concept of heating a carrier such as perlite to drive off water or steam which is contained in the spaces or pores of the perlite, which

are then filled by an agriculturally useful liquid composition when the perlite is submerged in the liquid. The technique would appear to be applicable to any solid carrier which has a large internal surface area, i.e., cells and pores throughout the structure. Further, it would be *prima facie* obvious to the ordinary artisan that the technique would be useful for any active agent capable of being solubilized. Finally, Pierce and Burkett both teach that such compositions may be compressed to form pellets or tablets. Huber has been cited to teach the equivalence of methyl cellulose, as taught in Pierce, with starches, gels, and other polyhydroxy materials, as carriers for agriculturally useful materials. There would appear to be no functional difference between the "holding materials" of Pierce, the polyhydroxy carriers of Huber et al, or the "interspatial blocker materials" of the instant invention.

Applicants refer to the formation of granular compositions as being a distinct feature of the invention not taught in the prior art; however, as noted above, both references appear to disclose the formation of pellets or tablets as a possible end step the the formation of the disclosed compositions. Applicants also refer to the use of exfoliated perlite material as being distinct from the teachings of the prior art, the exfoliated form being the result of heat treatment (p. 51+ of the response). However, the heat treatment as disclosed in the specification appears to be the same as that in the prior art, thus the exfoliated form also would appear to be taught in the prior art. While the drawings of Pierce recognize that some of the internal voids remain separated from any surface contact (i.e., do not communicate with the surface of the particle), the particulate materials exhibit a controlled release characteristic that results from increasing the amount of active agents which are entrapped within surface communicating pores of the

expanded perlite, rather than being deposited on the surface of the particle (col 17, lines 42-54).

While Pierce and Burkett focus on compositions comprising heated, expanded, and/or exfoliated perlite as the particulate material within which the other components are sequestered, as opposed to applicants' invention which is not limited to perlite (see claim 15), note that the disclosures of perlite compositions in the cited prior art still read on the generically disclosed compositions. Further for claims 99-122 and 185-200, which do not require the presence of the absorbent (e.g., perlite) material, these claims do not require its absence, either.

Claims 99-122 and 185-200 are rejected under 35 U.S.C. 102(a), (b), or (e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Huber et al, alone, cited above.

These claims are drawn to granular compositions that do not make use of any absorbent particles (such as perlite). Huber et al, however, disclose that gel, starch, or cellulose materials are useful for formulating granular controlled release compositions comprising fertilizers or other agriculturally useful materials (see abstract, and summary of invention, column 1).

No unobvious or unexpected results are noted; no claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mark Clardy whose telephone number is 571-272-0611. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Mark Clardy
Primary Examiner
Art Unit 1616

May 10, 2004